UNITED STATES DEPARTMENT OF COMMERCE
Chief Information Officer
Washington, D.C. 20230

FEB 10 2005

MEMORANDUM FOR Chief Information Officers

FROM: Thomas N. Pyke, Jr.

SUBJECT: Enterprise Information Technology (IT) Architecture

My memorandum of December 14, 2004, requesting revised Enterprise IT Architectures, provides guidance to assist you in preparing your Architecture. As discussed at the CIO Council meeting on February 9, attached is additional guidance in the form of a profile that outlines the structure and core elements of the Architecture.

Thank you for your efforts in preparing your Architecture and in ensuring that it is used as an integral part of your IT capital planning and investment control process.

Please submit your revised Architecture by March 31, 2005, to Tom Pennington (tpennington@doc.gov), the Department's Chief Architect, and to Ira Grossman (ira.m.grossman@noaa.gov), Chair of the EITA Advisory Group. Contact either Tom or Ira if you have questions.

Attachment

cc: Enterprise IT Architecture Advisory Group

Attachment 1

Enterprise IT Architecture Guidance

One challenge in working on Enterprise IT Architecture is developing a common understanding of what that term actually means. The Advisory Group has prepared guidance that describes and reflects the understanding that will be used to evaluate operating unit efforts. For the Department of Commerce, an Enterprise IT Architecture is defined as a process and framework that lead to the development, implementation, maintenance, and use of a "blueprint" that explains and guides how an organization's IT and information management elements work together to accomplish the mission of the organization. The blueprint must take into account the organization's business, performance measures, information, and work flows. It cannot be a set of technical decisions made in isolation of these mission elements.

The Advisory Group has prepared or referenced several pieces of guidance to assist you in your architecture efforts. They are located at: https://secure.cio.noaa.gov/hpcc/docita. The Group offers other assistance as well. Please see below.

Information Technology Architecture: What Is It, Why Should You Care, and How Do You Do One? This document is a "plain language" overview of the purpose of an IT Architecture and how one can be developed. Its objective is to assist both managers and technical personnel in having a shared understanding of the basics of the architecture process.

Department of Commerce Information Technology Architecture Elements Guidance List. This document supplements the overview above by providing more detailed "cookbook" descriptions of how to execute the steps toward an Architecture.

Evaluation Criteria for Meeting the Department of Commerce Information Technology Architecture Requirements. This document gives the evaluation criteria against which operating unit IT architecture efforts and status will be measured and against which individual IT Architectures will be evaluated. An IT Architecture Development Checklist and selected definitions are also provided. You should review the checklist before and after documenting your Architecture to ensure that you have considered all of the necessary elements.

Commerce IT Architecture Capability Maturity Model. This model provides a framework and structure to help guide you to improve the maturity of your IT architecture process over time.

OMB Enterprise Architecture Assessment Guidelines. This model provides a framework and structure to help guide you to improve the maturity of your IT architecture products over time. Follow the link to www.feapmo.gov.

Sample Enterprise IT Architecture Documents. Many people would like to see examples of what other organizations have done. You will need a userid and password to access this secure section of the Architecture Web site. Contact Tom Pennington at 202-482-5899 or Ira Grossman

at 301-713-3345 x 140, who can provide the necessary information as well as guide you to examples that are germane to your efforts.

Consultations. The Advisory Group offers "personal" consultation. Each DOC operating unit is different. Each Enterprise IT Architecture will exhibit special characteristics, and Commerce's architecture requirement contains the flexibility to allow organizations to use differing approaches to reflect these characteristics. The Advisory Group is available to review your plans for revising and refining your Architecture to ensure in advance that the Architecture will generally meet the Department's guidance and will lead to successful and useful architecture tools. The Advisory Group is also available to give advice on any other aspect of your architecture efforts that may be causing difficulty or uncertainty.

Except for the Evaluation Criteria and the Architecture Capability Maturity Models, none of the guidance is mandatory. You are not required to use any specific approach or produce specific sets of documentation, although some form of documentation is required. You must decide what elements apply to your enterprise and what format of documentation will best suit your needs as a tool to guide your strategic and operational IT activities and to conduct IT capital planning and investment analyses.

Attachment 2

Goals for FY 2005 Enterprise IT Architecture: The attachment provides a list of key goals for the FY 2005 architecture submission. Use these to supplement the guidance provided above.

For the FY 2005 IT Architecture submissions, the following areas should be of special concentration. These recommendations are based on OMB's assessment of Commerce's Architecture, the overall results of the prior years' assessments, and areas of focus Government-wide.

1. Continue to develop your architecture transition strategy. This implies that you have clearly defined target architectures.

2. Demonstrate the use of the Architecture in capital decision making. Link to the Strategic Plans, Strategic and Operational IT Plans, IT business cases, and IT Capital Planning and Investment processes, identifying how the Architecture is used and integrates with and supports the other efforts. **Provide concrete examples of how the Architecture has been useful to you. For instance, the Architecture may have allowed you to identify and eliminate duplicate systems.**

3. Develop performance measures linked throughout all levels of the Architecture.

$ Provide a detailed governance structure for compliance with the Architecture in investment review, procurement, and system implementation, as well as for maintenance of the Architecture itself.

$ Strengthen integration of IT security throughout the Architecture.

$ Align with the Federal Enterprise Architecture (FEA). This should include the following:

$ Identification of performance measures following the Performance Reference Model.
$ A complete linkage to the Business Reference Model for all functional areas within the operating unit (including administrative and support functions).
$ First level breakdown of functions relating to the Service Component Reference Model.
$ Operating Unit Technical Reference Model (TRM) and/or linkage to the FEA TRM.
$ Use of the Data Reference Model when it is released by the Office of Management and Budget.

$ Link to the Government-wide e-Government initiatives including existing or planned interfaces to them for delivering operating unit information and/or services.

$ Link to software initiatives identified through SmartBuy.

$ Include IPv6 and directory services in your target architecture, Standards Profile, and migration plans. You may also link to the Commerce Standards Profile.

Department of Commerce Enterprise Architecture Profile

1. Strategic Level

The strategic level of the EA identifies the following components:

- Vision
- Goals
- Objectives

These are derived from the President's Management Agenda (PMA), the DOC Strategic Plan and the specific operating unit Strategic Plan. These form the basis for the Target Architecture in that they define how the organization and its business processes need to change over time to achieve the desired result. Every initiative undertaken must be able to show linkage back to these goals and objectives.

In addition to the above, a set of Architecture Principles governs how these goals are to be achieved at each level of the EA. They are in essence high-level requirements that all initiatives must conform to. There is one set of Principles for DOC that covers all common requirements. Additionally, each operating unit may have additional Principles for areas specific to their business lines.

The final piece of this level is the Organizational Structure, which is a breakdown of the major subunits of the unit in question, and a description of what that organizational unit's function is.

2. Current Architecture

The Current Architecture is a blueprint of the organization, as it exists now. It is the starting point for all planning activities. It is composed of four sections, Business, Data, Applications, and Infrastructure, each detailed below.

Business

Business Line – Line(s) of Business (LOB) as defined in OMB Business reference model. For each LOB, the following information is required:

- Customer – who is the beneficiary of this LOB
- Product/Service delivered – what is the output to the customer
- Business rules – how is the business process governed
- Responsibilities – what organization(s) are responsible for producing and managing this business process
- Organizational goals supported - what goals/objectives are supported by this LOB.

- Partners – internal/external – what internal (within DOC) and external partners are involved in this LOB
- Security & privacy – what are the implications regarding security and privacy for this LOB
- Performance Metrics – what are the current performance measures for this LOB

Data

For each LOB identified above, the following information about the Data for that LOB is required:

- Characterization
    - What does the data represent (financial, weather, exports etc)
    - Who uses it, what processes is it used by (LOB linkage)
    - What is it dependent on – the value/meaning of the data may be context dependent, or dependent on the results of some other business line
- Products/Services Delivered (LOB linkage) – what is the end product derived from the data
- Management (storage, replication, disposition) – how is the data managed, quality control plans, what happens to it when the process is done
- Common definitions (meta-data model)
- Responsibilities – who is in charge of managing the data
- Security & Privacy - what are the implication regarding security and privacy for this data
- Authoritative source – what organization or process is the single authoritative source of the data.
- Performance Metrics – what are the current performance measures for this Data (accuracy, timeliness, etc.)

Applications

For each LOB identified above, the following information about the Applications for that LOB is required:

- Inputs, interfaces, outputs – what data goes into the application, what other applications does it exchange data/information with, and what is the output of the application
- Architectural model – Is the application a client/server, n-tier, or legacy application, and is it Web enabled
- Standards compliance (TRM Linkage) – what standards does the application comply with as defined in the DOC and FEA TRM
- Components – what reusable components make up this application
- Responsibilities – who is in charge of managing and maintaining this application

- Security & Privacy - what are the implications regarding security and privacy for this application
- Performance requirements – what are the current performance measures for this application

Infrastructure

For each LOB identified above, the following information about the Infrastructure for that LOB is required:

- Hardware – what physical and logical devices are used:
    - Servers
        - Application
        - Database
        - Web servers
        - Legacy (client/server)
    - Networks
    - Portals
    - User interfaces (desktops, wireless, handheld…)
- Standards compliance (TRM Linkage)
- Responsibilities - who is in charge of managing and maintaining this device
- Security - what are the implication regarding security and privacy for this
- Hosted applications/services – what applications and/or services are hosted on this device (e-mail, messaging, directory services, etc.)
- Performance requirements – what are the current performance measures for this application

3. Target Architecture

The Target Architecture is a blueprint of the organization, as it needs to be to support the Vision and Goals of DOC. It is derived from the PMA, DOC Strategic Plan, DOC Strategic IT Plan, the operating unit Strategic Plan and Strategic IT plan as well as business and technology drivers that influence the future requirements and directions of the Enterprise. It is composed of the same four sections, Business, Data, Applications, and Infrastructure, and documents to the same detail what each will look like when the desired state is achieved. Not every item will change, so it will consist of some elements as they are currently defined, the rest as they will be defined. For each LOB, determine from the referenced documents above what needs to change to support the Goals and Objectives, and detail in the same manner as the Current Architecture. Include specific new performance measures that demonstrate benefits of the new state.

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    - Networks
    - Portals
    - User interfaces (desktops, wireless, handheld, etc.)

- Standards compliance (TRM linkage)
- Responsibilities - who is in charge of managing and maintaining this device
- Security - what are the implication regarding security and privacy for this
- Hosted applications/services – what applications and/or services are hosted on this device (email, messaging, directory services, etc.)
- Performance requirements – what are the current performance measures for this application

4. Gap Analysis

The Gap Analysis is performed by examining the Current state and the Target state, and determining for each of the four levels what needs to change. For each LOB, an analysis of what parts need to change to achieve the Target is required. This would include any organizational changes, new or enhanced business processes, new data requirements, new or enhanced applications, and new or enhanced infrastructure components.

5. Migration Plan

The Migration Plan builds on the Gap Analysis and breaks it down into manageable projects. For each LOB, the following is required:

- Overall strategy - define priorities and dependencies, show linkage to project management
- Funding - once a project is identified, show linkage to the CPIC process (Ex 300 or similar for smaller projects)
- Collaboration - evaluate opportunities to build from existing components and/or identify others doing similar project and combine resources
- Implementation Timeline – if a detailed project plan exists, link to it; if not, provide completion dates and major milestone dates where possible